

## CLAIMS

1. A process for capturing mercury and possibly arsenic comprising at least:
  - a) vaporising (or flashing, step a1) then condensing a hydrocarbon-containing feed (step a2) without separating said feed;
  - 5 b) treating the effluent from step a2), comprising at least one step for bringing said effluent into contact with hydrogen and a catalyst;
  - c) a step consisting of passing the effluent from step b) over a mercury capture mass.
2. A process according to claim 1, in which step a1) is operated at a temperature in the range from the temperature of the end point of the feed reduced by 20°C to the temperature of the end point of the feed increased by 20°C, and at a pressure in the range 0.1 to 5 MPa.
- 10 3. A process according to claim 1 or claim 2, in which step a2) is operated at a temperature that is lower than that of step a1) and in the range -10°C to 500°C, and at a pressure in the range 0.1 to 5 MPa.
- 15 4. A process according to any one of claims 1 to 3, in which step b) is operated at a temperature in the range 130°C to 250°C, a pressure in the range 0.1 to 5 MPa and at a hydrogen flow rate in the range 1 to 500 h<sup>-1</sup>.
5. A process according to any one of claims 1 to 4, in which step c) is operated at a temperature in the range 0°C to 175°C, a pressure in the range 0.1 to 5 MPa, and at a space velocity in the range 1 to 50 h<sup>-1</sup>.
- 20 6. A process according to claims 1 to 5, in which the catalyst is based on sulphided nickel and is also capable of capturing arsenic.
7. A process according to any one of claims 1 to 6, in which the catalyst comprises at least one metal selected from the group formed by nickel, cobalt, iron and palladium, and in which at least 50% of said metal is in the reduced state.
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8. A process according to any one of claims 1 to 7, in which the catalyst also comprises a support selected from the group formed by: alumina, silica, silica-aluminas, zeolites, activated charcoal, clays and aluminous cements.
9. A process according to any one of claims 1 to 8, in which the capture mass contains sulphur and a metal at least partially in the form of a sulphide.
10. A process according to claim 9, in which the metal is selected from the group formed by copper, iron and silver.
11. A process according to claim 9 or claim 10, in which the quantity of metal combined or otherwise in the form of the sulphide is in the range 0.1% by weight to 20% by weight with respect to the total weight of the capture mass, and the quantity of elemental sulphur, combined or otherwise, of said mass is in the range 1% by weight to 40% by weight.
12. A process according to any one of claims 9 to 11, in which the capture mass also comprises a support selected from the group formed by: silica, alumina, silica-aluminas, zeolites, clays, activated charcoal and aluminous cements.